Field Station as Stage:
Re-enacting Scientific Work and Life in Amani, Tanzania

ABSTRACT: Located high in the Tanzania's Usambara Mountains, Amani Hill Station has been a site of progressive scientific endeavours for over a century, pushing the boundaries of botanical, zoological and medical knowledge, and providing expertise for imperial expansion, colonial welfare, national progress and international development efforts. The station's heyday was in the 1950s and 70s, a period of global disease eradication campaigns and the 'Africanisation' of science. Today, Amani lies in a state of suspended motion. Officially part of a national network of medical research stations, its buildings and vegetation are minimally maintained; some staff report for duty, but scientific work has ceased. Neither ruin nor time capsule, Amani has become a quiet site of remains and material traces. This paper develops the methodological potentials of re-enactment—onsite performances of past research practices—to ethnographically engage with the distinct temporalities and affective registers of life at the station. The heuristic power of re-enactment resides in its anachronicity—the tensions it introduces between immediacy and theatricality, authenticity and artifice, fidelity and futility. We suggest that re-enacting experiences of early post-colonial science, as events unfolding in the present, disrupts straightforward narratives about the promises and shortfalls of scientific progress, raising provocative questions about the sentiments and stakes of research in 'the tropics'.

Keywords: re-enactment, performance, memory, post-colonial science, Africanisation, field research, research stations

Introduction

> We moved into our bungalow that first evening. Like many other senior staff houses it was perched on top of a narrow ridge. At the back, we had a monkey's-eye view of the rainforest from which we were separated by a steep-sided little valley. In the front, it was spectacularly different. If there had been an international competition for the finest view in the world from a lavatory seat, I would confidently have entered ours. On a few clear days before the rains…just as the moon was rising, you could see the Indian Ocean as a narrow sparkling band, dividing the dark mass of the continent from the sky (Gillies 2000:130).

This is how remembers the late medical entomologist Sir Mick Gilles his house at Amani Hill Research Station where he lived with his wife and daughters from the early 1950s to the mid-60s. Moonshine, toilets, rainforests: the heady mix of wild safari and quaint domesticity one might expect of a British colonial outpost in north-eastern Tanzania. Yet Gillies' quixotic descriptions of sparkling ocean vistas are not the culminations of a travel log, but the backdrop of a scientific career. The hill-top bungalow was both Gillies' tropical sanctuary and his entomological delight: 'it is the fireflies that colour my memory of that house', he muses; 'it would be hard to discover a more secure retreat from the tensions of a troubled world.' (Gillies, 2000:130).

The history of science is littered with memoirs—part Bildungsroman, part technical exposition—that transform arcane activities like insect collection into acts of pleasure and fulfilment, even heroism (c.f. Daston & Sibum, 2003; Outram, 1980; Mellor, 2003; Nielsen et al., 2012; Porter, 2006; Shapin, 2008). Amani's particular conjugation of science and adventure was articulated and rearticulated through the idealization of a field station on a hill (c.f. Herzig, 2006; Kuklick and Kohler, 1996; Redfield, 2002).

Founded in the late 19th century by the German colonizers of East Africa, Amani looks back on a proud history of agricultural experimentation and botanical examination, a bridgehead for advancement in forestry, zoology, chemistry and biomedicine. Amani's methods, findings and illustrious personnel have, at various points, been central to imperial and post-colonial scientific endeavours, and although scientific aspirations for disease eradication and healthy African societies may have generally fallen short of initial expectations, the work carried out upon the hill did shape the course of tropical medical research and policy for decades.

Three thousand feet above sea level, the station's original purpose as a remote sanatorium for exhausted German missionaries and officers—a tropical *Zauberberg* has persisted in its later role as a hub of scientific production. Under British direction, Amani's seclusion was amplified by its self-sufficiency: its independent hydroelectric dam and generator, water grid, a dairy herd providing subsidized milk and meat to staff, its regular tennis and football competitions and social clubs ensured the socially-coherent running of the station, in the manner of modernist science-cities of the time, from Los Alamos to Gorki (Nowell, 1933:1098).

In hindsight, the period captured in Gillies' memoir was the station's apogee. The East African Malaria Institute at Amani, set up in the wake of World War II to advance Imperial visions of malaria eradication as part of the wider colonial welfare and development policy (Packard, 1997), became the scientific core of the East African Common Service Organization. Focusing initially on malaria, the Institute soon diversified into other insect-borne tropical diseases such as onchocerciasis and plague. During Tanzania's transition to independence—from the late colonial 'Africanization' of the 1950s to the final handover to the first 'African director' (emphatically defined in terms of skin colour) in 1971—Amani reached its largest architectural expansion, greatest staff numbers, and maximum scientific output. While these investments dovetailed with the Global Malaria Eradication Program, the primary activities of Amani's researchers remained at a remove from the implementation of disease control measures and 'applied' research.[1] Indeed, the medical researchers who were applying pesticides in the malarious

lowlands referred to the hill station's researchers as 'the scientists in the clouds: free to pursue their academic curiosities from the vantage of a transplanted piece of English parkland.'[2] The station's 'otherworldliness' certainly provided respite from the tensions of their troubled mid-20th century world: the ravages of the Second World War and ~~progressive~~ radically political transformations in Britain, the collapse of colonial empires and rise of African nations.[3] But, further, this hill station of sorts offered a refuge from the toils of the valley, where entomological and malaria specimens were collected (Amani was famously malaria-free), sick villagers ~~encountered~~treated, and weak infrastructures negotiated—a utopian retreat, in many ways, from tropical science itself (Kennedy, 1996).[4]

Commented [PWG1]: sorry, reinserted of sorts, as it isn't a hill station as such. does it sound bad?

Or can we say' this African version of a hill station'?

Commented [a2]: Sure—but remind me, why isn't it a hill station? Does the term primarily refer only to military garrisons? Or Indian outposts?

Half a century after Tanzania's political independence, Amani's distance from the mundane labours of science exists as much in time as it does in space. In-between phases of heightened scientific productivity, the station has~~d~~ been repeatedly mothballed in the past—for example, in the immediate aftermath of the First World War, when the station was handed over from the Germans to the British (Gerrets, 2013), or during the years that preceded its revival as malaria research station in 1951 (Beck, 1973). The 'contemporary' period, from the late 1970s onwards, when Amani became part of the newly established Tanzanian National Medical Research Institute (NIMR), has also been characterized by a gradual winding down, a closing of projects and the departure of personnel, a process compared by one retired researcher to the onset of paralysis.[5]

The station's decline was both sudden and slow, depending on whom you are speaking to: the colonial officials who took advantage of generous pensions and departed immediately following independence, or the aspiring African scientists who sought to resituate the station within the new scientific priorities of the young Tanzanian nation. But what resonates across the accounts of those who worked 'on the hill' is Amani's evocative power as an aesthetic and affective project, a location where multiple and diverse visions of homeland and history are intensely at play. Amani's bungalows, alpine chalets and freshly cut lawns of transplanted Kenyan 'Kikuyu' grass render materially proximate incompatible visions for the future and revisions of the past; appetites for

adventure and yearnings for the hearth; imperial agendas and burgeoning nationalism; the pleasures and heartaches of disinterested inquiry (c.f. Bissell, 2005; Fontein, 2011; Navaro-Yashin, 2009; Piot, 2010; Lachenal & Mbodj 2013). A site of consummate nostalgia, Amani's stillness merely exacerbates a pre-existing disjuncture between the station as a place and as an idea; as one of its former British inhabitants succinctly put it: 'Amani will never be Amani.'[6]

For an anthropologist, Amani's stalled and sedimented temporalities—inscribed in the very layout of its buildings and design of its gardens—are all-too-tantalizing. The picturesque remains and ruins, the clear monuments to ~~-~~futures that never materialised ~~beyond the realm of scientific projection~~, T~~t~~he sheer detritus of investigative clutter and epistemic things, can trigger a melancholic desire for authenticity already latent in the ethnographic encounter. Our own engagements with this terrain and with those inhabiting it ~~such semiotic excess has~~ teetered between ~~colonial continuities~~postcolonial critique, fantasies of past political ruptures, and frustrations with the ~~and political ruptures and desires—at once awed by post-independence ambitions and disheartened by the~~ predictable course of neoliberal economic rationalities (c.f. Hecht 2002). While such sentimental impulses are endemic to research in the post-colony (Abir-Am, 1999; Stoler, 2008), Amani's stillness casts these longings in sharp relief—walking along deserted paths between empty offices and laboratories, the bodily experience of fieldwork becomes pageantry of the past.[7]

In this paper, we face Amani's theatricality head on. In what follows we describe a series of re-enactments of research originally conducted in the late 1960s and 1970s around the time of Tanzania's political independence, and documented in exuberant detail, including photographs of fieldwork, and the locales and names of ~~participating~~ the assistants ~~and locales~~who participated in the work.[8] These stagings were prompted by the presence of our four companions, John Raybould, a long-retired British biologist and naturalist who between 1959 and 1974 studied the transmission of onchocerciasis, or river-blindness, in Amani, ~~between 1959 and 1974,~~ and the three former Tanzanian technicians, John Mganga, Stephen Fedha and Ramadhani Housseni, who had assisted

Commented [a3]: Failed better than forgotten?

Commented [a4]: The problem with 'economic continuities' is that it does not grammatically fit with the series of critique and fantasies as the first two of those describe our responses/sentiments to Amani's terrain while economic continuities describes a the situation.

I tried to edit these back together and lose some of the repetition. Does it make more sense?

Commented [PWG5]: Must confess the previous version made somehow more sense to me. Can you have one more look at what the change adds?
What I like in the previous formulation was the idea that our images, projected, upon the terrain, create specific relations with in those already inhabiting it, and these relations are ambiguous, because they teeter between smugness of postcolonial critique, recollections of political rupture, and lasting political economic continuities, in our relations and positions.

him. Initially, these on-site performances of past field and laboratory practices served as a way to ethnographically read Amani's 'archive' ethnographicallyin its broadest sense, embracing its landscape, architecture, documentary and material cultures. Even, say, helping Stephen and Mganga clear the underbrush concealing their former sites of insect collection conveyed some of the rhythm and tactility of the work they had carried out for so many years together.

Yet the emotional tenor of these events trafficked in something other than the past *per se*. Being together 'on stage', holding hands down a precipitous slope or digging through a box of discarded instruments, generated intimacy across our positions as actors or spectators (c.f. Rancière 2009). These co-presences are, of course, anthropology's wheelhouse and, we too, sought to generate rapport by participating in the mundane. Beyond a commitment to 'being there', immersed in the everyday, our efforts to capture and instantiate a set of practices, speaks to the enduring significance of the scenario or 'scene of encounter' to ethnographic research and representation.[9] But like the restaging of rituals or the mounting of ethnological dioramas, reanimating the scientific past in the ethnographic present introduced new attachments and anxieties. Marked by postcolonial decline, Amani's current state posed considerable limits on the representative accuracy of these performances. As our experiments proceeded, the gaps between what Amani *was* and what *remained* became increasingly unsettling, stirring up questions about the continguityies of aesthetics and epistemics; ritual and routine, methodological rigour and cargo-cult and even about the broader purpose of the station itself. These uncertainties, reverberated through our own ethnographic undertaking, which from the moment these experiments began, threated to collapse into an altogether more ludic enterprise—an 'entropology' of nostalgia, mimesis and desire to come in contact with an authentic past (c.f. Debaene, 2014). If *re*-enactment suggests the performative reanimation of a once 'real' past, our own playing at science cast doubts both over the realism of the ethnographic inquiry, and –about the common sense realnessalso that of the naturalist science that for which Amani had once had been famous. for.

Commented [PWG6]: I feel like inserting here something like: 'imbued social engagements with temporal connotations' .... something to make clear that all ethnographic work builds on copresence, but that ours, actually, ruptured the copresence at the same time by intertwining it with temporal distance.
and hence jarring and anxiety.

Commented [a7]: I think I understand but perhaps best if you insert what you'd like to say?

Commented [PWG8]: I simply can't find the right words and, but is this not one of the moments where we could bring in the comment by reader three concerning "real" science?

Commented [a9]: I think we do draw out realism and science below, I feel here it would disrupt the flow?

Below, we shall first elaborate the peculiar temporalities of Amani, followed by a brief note on re-enactment as an ethnographic method. We shall then outline 'the play', suggesting some of the lessons learned from three 'acts' of re-performed scientific practice, each taking its clues from a different set of published papers, and covering both naturalist and experimental setups, and field and laboratory work. While these staged 'taskscapes' recuperated something of Amani's former affective and aesthetic vitality (Ingold, 1993), we are less concerned with the historicity of these performances than with the constellations ~~o~~and ~~f~~ ~~responses,~~ pleasures and discomforts they produced in the present. In what follows, we recount our attempts to play with the past as a rapprochement between the ethnographic endeavour and the traces of tropical science in the postcolonial present.

Commented [a10]: Do we need 'constellations'?

Commented [PWG11]: is this necessary? I mean its not just pleasures…

The Stage: Amani Hill Station

Amani constitutes a particularly striking 'home for science'. Not all scientists make their home in the field, not all fields demand or enable home-making, and not all disciplines, ~~methodologies~~ methods or ~~historical times~~ moments in time create equally homely conditions. Secluded on top of a mountain range, the station's core—laboratories and administrative offices, guest house, library, garages and workshops—is shadowed by exotic trees planted during the Amani's foundational period as German Imperial botanical garden (Nowell, 1933). A group of elegant colonial bungalows amidst sprawling lawns of imported green, trimmed grass are poised on the surrounding hilltops; a more densely built-up settlement—what, was, in colonial times, the quarters of African staff ~~quarters~~ —occupies a terraced valley below. An assemblage of incongruous references to distant homelands and national idylls—Constable's England, Bavarian mountain huts, metropolitan academic buildings, modernist garden cities, Amani's landscape projects the values and promises of home—apparitions that tantalize but remain forever out of reach. Amani's self-sufficiency as an isolated and yet functionally integrated space resounds in the memories of the station's past and present inhabitants,

from whom Amani was a collective home, a micropolis, engendering a wider sense of being at home in a scientific civitas.

,An ambiguous colonial legacy, that dream was passed on to most of the people who lived and worked at Amani around independence. Lisa Wegesa, the mother in-law of its first 'African Director' (as it were, a Kenyan scientist who married his local laboratory assistant), and whose small farm is not far from the station, commented: 'Amani was so beautiful but now it is nothing of what it was. *Inatosha kama kufa* – as we say, *fully dead*.' Fully, and yet, not quite: while some infrastructure is damaged and circulations of personnel and resources have ceased, the stations landscape and architecture are neither ruined nor abandoned. Hedges are trimmed and gardens modestly tended; the sheets in an unused clinical examination room are laundered weekly. The Post Office lady keeps opening hours while no letters arrive or are sent; a man in a lab coat nurtures a burgeoning colony of white mice established over a decade ago by a scientist who has long since passed away. Each of the four large laboratories, all of them each dedicated to one in the pantheon of mid-century eradication programmes—plague, malaria, tuberculosis, onchocerciasis—has its own, elderly attendant, polishing instruments and dusting specimens, slowly rotting in their jars. A maintenance officer presides over impressive, but empty stores, enforcing procurement protocols and attendant paperwork; a permanently absent director posts rigid leave procedures on administrative displays outside his enormous, meticulously cleaned and aired office.

Commented [PWG12]: actually, she spoke only Kiswahili, right? so why not just give the translation, as 'completely dead' – isn't that easier?

Commented [a13]: Fine by me—can you please change it to how you think it should go? Do you mean take out the first part of the sentence—just unclear

They all appear to be waiting and it is this state of an inertia ripe with expectation, poised between resignation and anticipation, performance and projection that makes Amani so extraordinarily theatrical. The staginess of the station is ~~put~~ brought into relief by the persistence of mundane routines—the building maintenance and ground patrols, the cataloguing of periodicals from the 1970s, the daily record of meteorological observations, the monthly publication of a station report. Disconnected from the circuits of knowledge production, these activities have the feel of empty ritual—'~~a~~a sort of cargocult~~'~~ science (c.f. Feynman, 1974).[10]

But then again, it may be the case that Amani always has been a stage of a kind: from the earliest German inhabitants' wayward railway infrastructures, their Alpine chalets, ~~amidst coniferous forests collected around the empire,~~ their balconies of blooming with Usambara violets, carefully placed amidst conifers collected from around the empire; ~~;~~ through their English successors' efforts to transform African rainforest slopes into Lakeland lawns, dotted with solitary trees and Frisian cattle, their preserved English manners, sheltered from 1950s 'winds of change', and their youthful naturalism imbued with scientific seriousness; up through 'Africanisation', when young Europeans took a stance by breaking 'colonial ~~'~~rules, dancing in the African club, seeking friendships across racial divisions; and finally, when young Kenyan, Ugandan and Tanzanian scientists took over the institution, continuing ongoing experiments and conceiving of novel, specifically 'African' investigations.~~.~~

It is onto this stage saturated with the memory of past aspirations, and among its 'natural inhabitants'—security guards, overgrown arboreta, laboratory animals and rusted instruments—that we stumbled as ethnographers: disturbing quiet routines, literally raising some dust, cutting through cobwebs and undergrowth, causing unexpected movements, making some new connections, engaging materials and people in our own reverie and make-believe—just as anthropologists do in any ethnographic field. But here the contours of fieldwork—the performance of immersion and pretence of participant-observation—became strikingly visible as the relationship between research practices and everyday life dissolved into a makeshift theatre of the past.

Re-enactment, Ethnographically

Performative and experimental approaches to historiography~~y~~ have recently received increasing scholarly attention (e.g. Agnew, 2004; Corner, 2002; D'oro, 2004; Roth, 1998). No longer dismissed as an enthusiast's branch of 'popular history', re-enactments have been reconsidered for their capacity to conjure the affective dimensions of the past (Agnew, 2007; Philips, 2008). The elasticity of the term— alternatively used

Commented [PWG14]: Should we have a footnote here, again, going back to the issue of "real science" that opens up the big can of worms. What actually constitutes "real" serious science as opposed to make-believe, cargo cult, pretending to be science?
Irrespective of footnote, or not I would be curious to get your science studies, advice on that question of what makes science real. Or: what makes Dr Wegesa's mad experimenting with mosquitoes in his last, mud hut, fake laboratory into madness, while Gillies running around in shorts and woolly socks, catching the most beautiful bluebottle fly was serious science. Of course, the answer is obvious, networks, circulations, and effect; but I am sure you can say something more interesting about that.

Commented [a15]: My sense is that you do this nicely on page 17 and in the conclusion, the discussion of performativity and the possibilities and limitations of the concept responds to this as well. I think an explicit footnote at this point will pre-empt the unfolding of the ethnography around this question and take readers out of the text. I think the paper is one way to grapple with this question, to provoke discussion (as per our reviewers comments) rather than to come down with a final settlement of what makes science real or not.

But if you have a clear idea for a footnote, please feel free to add.

to describe docudramas, living museums, ethnomasquerades, fantasy gaming, performance art, and heritage tourism—prompts considerable epistemological unease and thus, much of the literature on re-enactment is taken up with the problems of definition and classification (e.g. Clarke and Warren, 2009; Gapps, 2009). ~~But~~ Yet despite attempts to parse performance-based historical investigation from the role-playing of hobbyists, re-enactment's abiding commitment to experiential immediacy tends to dissolve lay-expert distinctions. If anything, re-enactments are characterized by public participation, a mingling of scholarship and sentiment, evidence and inventiveness whose consequences are both political and methodological (c.f. Hell, 2005).

The legitimacy of re-enactment as a heuristic device speaks to a particular notion of temporal proximity. Like the writing of microhistory, zeroing-in on the vicissitudes of everyday life renders historical phenomena—revolutions, feudalism, fascism, slavery, the Inquisition—vivid to a contemporary audience (Ginzburg, 1980). This cinematic sensibility is amplified in the context of a re-enactment, where attention to detail is both a narrative strategy and a research tool (Cook, 2002). It is the re-enactors that embody these lessons, seeking to approximate. e.g. the tacit knowledges of seafaring through the friction of rigging on their palms. Thus while the past remains a foreign country, visceral engagement with its artefactual trappings render its pleasures and hardships contiguous with our own. Hauling the past through the peephole of the present, re-enactment collapses historical distance not merely through vivid narrations but by exchanging analytic detachment for empathic desire.

Needless to say, re-scaling historic event to personal incident complicates the relationship of re-enactment to historical accuracy. Verisimilitude is clearly critical to the method: the correct weather conditions and army formations, the weave of a uniform and the make of a bullet ensure the internal coherence of a battle brought to life. Yet that consistency can only go so far—despite every effort to 'get it right' anachronism inevitably~~s~~ seeps in. The endemic problems of fidelity, however, do not nullify the relevance of these stagings as a historiographic exercise. Ultimately, the mimetic preconditions of re-enactment are circumscribed by their revelatory mandate: to trigger

an emotional response and thus enable identification with the past. The psychological transformation of the re-enactors is a consequence of the power of their performance and of the degree to which they personally invest in the dramatization of the event. 'The theatre of preforming history summons a certain kind of energy' Freddie Rokem aruges, 'which validates the authenticity of the events that are depicted on the stage as historical events' (2000: 101-102).

If psychological transformation is the aim of performing history then the resemblance between the performance and the event is secondary to ~~its~~ the *eventfulness* of participation. One obvious way of generating the kind of energy to which Rokem refers is through arduous physical work and discomfort.[11] The motivations driving this extreme form of testimony are suggestive. While one might assume a direct correlation between the identities of re-enactors and their chosen topic of re-enactment—for instance, contemporary Cherokee representatives ritually re-tracing the Trail of Tears—thickening genealogical ties is only one, rather narrow, dimension of re-enactment (e.g. Kelin 2002). It is just as likely that people will enact histories at a far remove for their own, precisely because they require more work to 'get in side' and ~~for which~~can eventually generate a more intense ~~the~~ experience of conversion ~~is more intense~~ (Agnew 2004; Gapps 2005).

Embodied and eventual interpretation has also recently been taken up by archaeologists who have begun to grapple with the performative potential of their own mode of tracing the past through excavation, curation and exhibition (e.g. Holtorf, 2012). Echoing 1960s performance artists like the Boyle family, who 'dug' into the detritus of contemporary urban life, the contemporary archaeologists recognise that just as all present is already ~~is~~ past, all past is contemporary, and archaeology, rather than reaching out into the past, is a practice of material attention that constitutes an event in the present (Harrison & Schofield, 2010). 'Contemporary archaeology', including but not limited to the study of 'present' everyday artefacts, refocuses then from the excavated object to the excavation—~~-~~not as a reconstruction, but as a ~~as~~ creative and indeterminate 'crafting of the past'~~, living it in the present, that is also indeterminate event 'crafting the past', not~~

~~reconstructing but recontextualising it~~ (Pearson & Shanks, 2001:ii). Archaeology is, in short, another form of re-enactment: it, is about creating continuity through open-ended praxis, about artfully maintaining a relationship with the ~~; it is a relationship we artfully maintain with~~ the past through encounters with material remains.

Our ethnographic tracing of the remains of scientific pasts, aims for a similar double move: deploying performance—our trademark 'participant observation' as heuristic tool—while at the same time recognising scientific knowledge-making as performance. Indeed, the performativity of science has been a leitmotif of science studies (see Herzig, 2004) and speaks to an analytical preoccupation with the crafting and stabilization of scientific objects and claims. We are accustomed to thinking of science as inherently reproducible; indeed, its practices are regarded as only meaningful insofar as they can be re-enacted (e.g. Galison, 1987; Rheinberger, 1997; Schaffer, 1992). When experiments are restaged the point is rarely to cultivate the collective experience of a particular historical event, but rather to validate or falsify their epistemological basis or alternatively to reveal the deep cognitive processes of theory formation (e.g. Haslam, 2015; Tweeny, 2004; Usselman, 2005). The upshot of understanding science as performance is to focus attention on the socio-material contingency of experimental systems (Davies, 2010; Latour, 1983). Within this framework, science becomes incidental—in the sense of occurring in time and not outside of it (Schrader, 2010).

The re-enactments described in this paper therefore do not seek to provide an historical account of the past 'as it really was' but rather offer a framework to interrogate the conditions of historical eventualities and our place within them. We do not aim for a realist account of colonial science, nor of what did or did not change in the years following Tanzania's independence. While our initial approach was ~~certainly~~ motivated by a desire to uncover something unspoken or even unspeakable about research during this period of transformation, Amani we soon discovered, is a radically hetereochronous 'lab-scape' (Kohler, 2002; c.f. Tilley 2011). The affective tenor of scientific work reflects an acute awareness of the passage of time and possibility; here as elsewhere in postcolonial Africa, the "traces and memories of the lab are at once a reverberation of

Commented [PWG16]: Is it really the conditions of historical eventualities? Is it not rather about exploring the promiscuous trade between past and present, and our journeying between them?

Commented [a17]: OK—happy with what you have said in the comment above, would you like to phrase as you see fit?

Commented [PWG18]: Does that work as one sentence? I can see our desire, and I can also see the radical heterochonicity - but does it belong together. Please check.

Commented [a19]: The reference here is to our our desire to uncover some authentic truth about how these men felt about the work or their relationships to carry it out—and how this yearning to uncover something true runs up against the varied nature of the affective experience of re-enactment and how these stagings dig up not only how people felt about the work in the past, but how they feel about it from the perview of the present. If it is not clear, please do change

Commented [PWG20]: Of what work?

past activity and a reminder of its discontinuities." (Tousignant, 2013: 730). Thus, our theatrical forays into the field sought to come to grips with the localization of scientific temporality—to create a framework to interrogate the conditions of historical eventualities and our place within them. As Vanessa Agnew (2004) puts it: "Re-enactment's emancipatory gesture is to allow participants to select their own past in reaction to a conflicted present. Paradoxically, it is the very ahistoricity of re-enactment that is the precondition for its engagement with historical subject matter" (Agnew, 2004: 328).

Imaginatively re-lived and emotionally redoubled, the past is retrieved from the realm of foreclosed possibilities and opened to re-vision as new relationships, resistances and possible outcomes are brought to light. Re-enactment allows participants to ask: what would I have done and how might this event have happened differently? The collapsing of temporalities jettisons the objectivity of the archive and even the admonishments of historical expertise. For to salvage the particular moment from the wreckage of progress is to place ourselves at the centre of interpretation, regaining agency both with regards to our past and to our future (c.f. Benjamin, 1970: 257-8). Re-enactment works with and against the grain of historical accuracy; the literalism of its stagings creates the conditions for conjecture (Schneider, 2011). The radicalism of re-enactment is that it reads back masquerade into history, accentuating the present concerns that claims to the objectivity of the archive seek to conceal.

The Play

It would be dishonest to suggest that our experimental re-enactment in Amani was inspired by theoretical readings in contemporary archaeology, or history-in-action, practice-as-research, or performance studies. Rather, we stumbled onto the stage, unaware of being part of an evolving performance. Our initial efforts to conduct historical anthropology by relating information about the past had been frustrated by the blatant lack of scientific activity—and, indeed, of much social life—at Amani. Thus, in order to

give us some ethnographic subject we decided to walk around the premises ~~walked~~, initially together with John Raybould, Amani's last European scientist, who had only left Amani~~, after 15 years there,~~ in 1974 after fifteen years of life and work at the station. While walking, John shared his copious memories, and was remembered by those we encountered. Known as 'Kidevu', or the Beard, John was the only person who was remembered by name and face by everybody we spoke to, from British scientists to local villagers (including even those who had never seen him, since they were born after his departure).[12]

It was John who first suggested that he might collect and show us some of the many different species that he had studied half a century earlier, and it was at this point that we realised that the re-enactment of ~~his past~~the work described in his published papers methods, might be just the right thing to do in a place where anticipation was the predominant mode of existence. We could do nothing better here but reanimate the suspended scientific work. Guided by detailed photographs and by the instructions in John's papers' methods sections, using the props we found in mothballed labs and stores, following the lead from his former assistants, we systematically re-constructed three key stages of his work on onchocerciasis, or river blindness, a debilitating disease caused by a blood parasite transmitted by blackflies that in turn breed on fresh water crabs: the man-baiting catch of blackflies, the collection of crabs upon which the blackflies attach their larvae, and the conduct of artificial fly-rearing experiments in the laboratory.[13]

At first, we positioned ourselves as spectators, taking copious photographs and video—staying out of the frame. Yet, our entanglement in the play became impossible to ignore, as we, together with our protagonists, gathered tools, searched for former sites, located relevant publications in the library and read instructions from their methods sections. Our generational and professional relationship with John, as both his children and students, ~~were~~ was also part of the play~~; as~~. Our ~~were our~~ shared socio-economic and racial backgrounds played a part and ~~, although~~ our interactions with Tanzanian staff were shot through with generational connotations, too. Finally, ~~that~~ the fact that old ex-staff were paid for their contribution to our research—quite possibly at a comparatively

lower real-value rate than their salary half a century ago—further underscored the tense postcolonial texture of the encounter.

Soon after John's reunion with his former assistants Mganga, Stephen and Ramadhani, the latter asked what kind of research John 'had brought' this time, implying not quite the hope for a full-scale revival of the station to its former life, but at least for some form of temporary paid work (at the current daily rate for a research assistant). John responded with a slightly awkward description of our project as history, and was happy when our suggestion to walk with the men, and eventually to re-enact their joint work, allowed him to 'employ' his former staff again, at least for a few days. As we shall see, the tensions between John's understandings of his former fieldworkers' expectations and ~~motives,~~ Mganga, Stephen and Ramadhani's ~~memories John and their own distinct commitment to~~motivations to work again with John ~~research~~, came to the fore as this team tried to bring Amani back to the past.

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Act One: The 'Human Landing Catch'

We began by re-enacting an important method in classical tropical entomology, the human landing catch. Also referred to as 'man-baiting catch', this method involves the collection, over extended periods of time, of man-biting insects, from exposed body parts, usually those of local assistants. Guided by photographs in a 1962 paper, Ramadhani and Mganga, the two 'assistants' identified in the pictures, positioned their wooden stools on a grass covered patch at a crossroads, and began collecting flies from their exposed calves, for a planned twelve hour period. The necessary e~~E~~quipment, almost untouched since he left it in the 1970s, ~~had been~~was found in John's old laboratory~~, which had been left almost untouched since he left it in the 1970s~~. ~~(~~The only missing prop was at the original pre-printed registration form, which we replaced with a French language ~~1980s~~ Cameroonian fly survey form left behind in a drawer ~~by some~~following a training workshop ~~activity~~run in the 1980s.~~)~~

The peculiarity of the method raised some obvious political and ethical stakes. Using someone's body for the painful and potentially risky attraction of biting insects, deploying in the process ~~across~~ obdurate gradients of professional hierarchy and race, had provoked much debate after decolonisation, and had led in some ~~in some~~ places in Africa led to a ban on the method (although it is still widely used, and ~~claimed to be most~~regarded as the most reliable ~~due to its naturalism~~tool to assess rates of transmission) (see Nebele & Musesengwa, 2010; Kelly 2011). Fifty years later, asking some of these elderly men to act as fly-baits again, was if anything more contentious, in view of changed moral and ethical horizons, and on account of their physical fragility, ~~and the~~as well as absence of any actual medical-scientific justification. Far from being spectators (and/or mere directors) of action, we were thus self-conscious participants, our discomfort resonating with our elderly guides' aversion against the colonial and class relations of his time, which had found its expression not only in fondly remembered breaches of racialised social protocol, but also in his systematic acknowledgement (sometimes ~~attributing~~ through co-authorship) ~~to~~ of his African assistants, and his abolishment of the then current term 'fly-boys' for the grown-up men with whom he worked.

However, it quickly became clear that this re-enactment of past domination was incomplete. Two hours after we had left the fieldworkers to their work we returned with John to find Mganga and Ramadhani packing up. They had decided to leave~~,~~ on account of the heat, and because they were not catching enough specimens—'there are no flies any more these days'—possibly reflecting a decline of fly populations due to forest destruction, or perhaps their lack of interest in the task (Muro & Raybould, 1990). This unilateral termination underlined the unpredictable eventuality of the performance; it also draw our~~s~~ attention to questions of scientific stakes and purpose: When is work such as man-baiting serious scientific labour? And what does it take to make it meaningful?

An insect collection like the one enacted here only makes scientific sense if carried out over considerable time, and repeatedly, to allow comparison (ILLUSTRATION c.f. Raffles 2010). ~~For us as~~For our purposes, as ethnographers of

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~~science~~scientific labour, a complete re-enactment of such lengthy investigation was impossible and, we thought, unnecessary. Yet, for John, this incompleteness was a problem, because it prevented him from demonstrating to us how scientific claims are made. For him, forays into the forest, though pleasurable, had to be justified as work and relied on the seriousness and validity of its findings. Meanwhile, for Mganga and Ramadhani, the question of purpose seemed to pose itself differently: the latter explicitly stated—somewhat uncomfortably in the face of our performative enthusiasm—that he cared little about the what the work was, as long as he was paid. Mganga, by contrast, was disturbed by his inability to do the work as meticulously as he used to do, ~~on account~~due to ~~of~~ the short time and the non-original, ill-suited French language form. ~~For him,~~ Sserious work ~~-~~required the precise execution of demanding procedures, from which he clearly derived satisfaction and considerable~~,~~ pride ~~and identity~~ as a member of Amani's scientific staff.

The villagers passing us on the road in the course of the experiment, who were looking, pointing and ~~not rarely~~often giggling at the two old men catching flies~~,~~. They clearly did not see much sense in the whole exercise~~,~~; nor did they take it very seriously. One of the assistants recalled how people in the past, ~~occasioned by~~when encountering the same practice in the same place, had also responded either with laughter or with fear to the strange men sitting motionless in a forest clearing, in suits, but with naked legs, rubber tubes in their mouth and glass bottles in their hands.

This reaction ~~raises more general~~provokes broader questions about the purpose, intent and futility of this practice. ~~:~~ ~~i~~We assume that the comedy of our ~~f our~~ re-enactment ~~did not make much sense~~was down to its status as a ~~to some, today, is this because it is a~~ 'mere' performance of a once 'real' scientific act~~— has it ever been real~~. That the passers-by reacted in exactly the way they might have done over fifty years ago, however, blurs those performative contours. Had fly-catching ever been real? ~~?~~ To ~~Did it ever make much sense, and to~~ whom did it make sense and ~~,~~ on account of what? Apart from the pursuit of well-devised scientific ideas fitting speaking to contemporary publications and debates, and given a particular social value with reference to ongoing health policy and

intervention, what we refer to here as 'sense' requires wider circulations, of standardised forms and tools, and of resulting 'data', which in the past took form in administrative channels of scientific reporting and disease control interventions; and it relies on a legitimate place of global knowledge-making: ~~:~~ Amani, in 1960, ~~was both a legitimate place of global science-making and~~ a central node of multiple academic networks (Gieryn & Henke, 2008; c.f. Pollock, 2014).

And yet, even if ~~it was~~it had been possible in the past~~, in the past,~~ to constitute these activities as meaningful and to ~~, serious, sustained~~ sustain them by a concrete ~~a very specific~~ infrastructural order~~, as well as by time-bound understandings of 'seriousness' and 'dedication'~~ and normative orders of scientific training and practice, ~~inculcated through schooling,~~ the assistants' memories of laughter and fear, and their own discrete laughter at John's naturalist zeal—his excitement about an insect, or his vain attempts to explain to villagers that we had 'come to look for flies'—suggests that this did not convince everybody, and that for many such work remained a (white man's) folly, or even a nefarious subterfuge.

~~The question why anyone would do such work – look for flies, or let others find them – is made even more pressing in our re-enactment:~~ Why ~~why~~ would anyone one want to *play* at this most boring and unpleasant of all routine scientific work was the question that hung over the performance. ~~? This question, which everybody present sensed during our performance (including ourselves), resulted in a~~Awkward laughter and embarrassment ~~; this~~ may be ~~a feature~~endemic to all manner of ~~all~~ re-enactment~~—~~, ~~arising from~~ the double role as witness and actor, ~~pretending to be~~the juvenilia of make believe ~~somebody else~~, pretending to be someone or somewhere ~~–~~else, dressing up in clothes and adopting mannerisms from ~~or in~~ a different time. But here, the implications of this discomfort seemed considerably more profound. Mganga's sideways glances at Ramadhani, their sheepish grins as they sat on their stool looking at their legs, our shrugs in return—exposed a fundamental absurdity to the act above and beyond its re-performance. Had ~~; but might not the august execution, 50 years earlier, of serious, but~~ fragmented scientific operations like ~~this~~ fly-catching ~~also have~~ been a matter of

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suppressed laughter ~~(and~~or perhaps even rage some 50 years earlier~~)~~? This, then, may be the first lesson to be drawn from re-enactment: ~~what~~ What is it actually that makes sense~~,~~ and lends purpose~~action purpose~~ to action? How are ~~, and how different are~~ the stakes in a particular act different distributed? ~~distributed in a particular act?~~

Act Two: Crab-Catching

The disease-carrying flies collected in the first experiment attach their larvae to the carapace of river-breeding freshwater crabs (McMahon, 1952).[14] ~~For this reason,~~In the 1960s, the role of crabs in disease transmission became, at least temporarily, a hot topic in tropical medicine. ~~some temporary scientific interest turned in the 1960s towards crabs, precisely at the time when John commenced his fly studies in Amani. He~~ John, who had just commenced his fly studies in Amani, took this new scientific attention as a welcome occasion to extend his investigations into the local fauna. While framed as contribution to projected disease eradication programmes—or, more specifically, preparing the effective application of insecticides like DDT to watercourses—John's work was ecologically focused on symbiotic relationships between insect and crab, and the variability of interspecies adaptation, and interactions with environmental factors (Raybould, 1967).

~~Part of this activity~~This research involved ~~was~~ catching crabs for identification and ~~to find~~finding fly larvae from streams and rivers in the rainforest~~. This~~ —a far more physically demanding task than ~~was much more physically demanding labour than~~ fly catching. ~~, and our~~Our re-enactment, exploring rocky streams, rapids and waterfalls, surrounded by dense vegetation, and steep slopes, pushed the physical limits of the elderly men, (raising, like man-baiting, questions of appropriateness and ethics.) Unlike sitting on stools in the sun, this collaborative experience ~~It~~ provided an opportunity to probe the 'enskilled' nature of the task—the ~~experience, the~~ familiarity with minor features of the landscape, the physical dexterity, ~~the well-habituated gestures~~the ~~, and~~ speed ~~of movement~~ and ~~the sharp eye~~sharpness of recognition ~~trained to~~ necessary to

Commented [PWG27]: I would somehow like to get away from the simple idea that these operations made sense then, because of the infrastructural trappings, and are only at certain today. Clearly there was some absurdity to it all the way through.

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Commented [a29]: Tried to condense a bit as it seemed repetitive—but agree with hitting the 'was it ever real' question home

discern crab species and spot minute larvae—abilities~~, which~~ that ~~all, including~~ all members of the team ~~John~~ were able to revive after several decades. In this way, t~~As such, t~~racing the paths and repeating the gestures, under the same climatic and geographical conditions did ~~did also achieve the purpose of~~ succeed in 'capturing a disappearing world,' ~~that some~~ precisely the effect that some historians hope to generate through ~~think~~ re-enactment ~~might be useful for~~ (Kneebone & Woods, 2012).

Yet, more importantly, the practice of re-enactment established new roles and relations. While the ethnographers were poor crab hunters, we were earnest students; the old men calling us over to show particularly interesting species or morphological features, pushing physical limitations with naturalist enthusiasm. In his effort to discover and show us *all* the endemic species, John in particular risked his own safety and tried the team's patience. A~~—a~~dopting his familiar pose of a zoologist on a field excursion, he seemed to quickly forget that we were studying him and his colleagues and not the animal kingdom. John's zeal in these moments shifted from that of the 'good informant' to the passionate teacher, carrying responsibility for the completeness of our knowledge. When sliding around on slippery rocks on top of a waterfall, searching for a stick-breeding larva, ~~and~~ or later, ~~trying to catch his feet with his~~struggling to put back on his socks on a sunbathed rock after the end of the work, oscillating between satisfied smiles and backpain, John also elicited filial sentiments, of responsibility and care.

But the affective countenance of this second act only took hold after the planned performance. In the early morning following the arduous crab collection, unobserved, when nobody thought of filming, we found John, alone, on his way back up the precipitous path through the forest that led to the stream where the crabs had been collected. Unobserved, and while nobody was filming, he was planning ~~He had planned~~ to return to the site and return the crabs in secret, not wanting his assistants to get the impression that the work of the previous day had not been a 'real' specimen collection and thus without scientific purpose. As their mentor and former boss, John wanted to guard them from this disillusionment. But keeping up the ruse may have also secured his

own pleasure in reliving the past, which relied on his supporting actors ~~some of the actors~~ believing they were doing the real thing.

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Echoing discussions in local archival documents about the importance of imbuing African workers with a sense of the 'seriousness' of data collection, John did not want ~~them~~ his collaborators to lose their respect and pride in rigorous labour (Poleykett & Mangesho, in press). The question remains as to whether these staff had ever thought of their work within the same idiom of use and value. There was little doubt that many of the African scientific staff and technicians of their generation had imbued field research with a particular ethos (see Geissler 2011), but how, then, did different kinds of commitment and affect, different work ethics, actually relate?

John's sense of responsibility extended to the non-human participants and to the place itself: he did not just throw the collected crabs in the thick bush around the station or a nearby pond, because they needed flowing water. He deposited them in a watercourse and not just any ~~And not just any~~ watercourse ~~would do~~: returning the crabs to very place where they had been collected, he explained, preserved the natural species distribution—a demonstration of the non-interventionist character of his naturalist enquiry and of his commitment to the untouched nature at Amani.

When we repeated the crab-catching the next day, Mganga undercut these anxieties, asking whether he might be able to take the crabs home to cook, which certainly solved the problem of returning the crabs to their habitat. These 'out-of-frame' events draw~~s~~ our attention to another feature of re-enactment: its contingency, the ability of performance to extend beyond its stipulated limits, revealing ~~here~~ otherwise unarticulated—but scientifically significant—forms of care: for people, place and 'nature', shedding light on past research, and opening the way for new engagements. That excess reveals the porosity of experimental work and station life, of the place and placing of science, of the boundless of the field.

Act Three: Rearing Black Flies

The ‘flies’ and ‘crabs’ described above, include a wide range of species and subspecies, each uniquely adapted to particular conditions of humidity, temperature, water flow, lighting, and to the presence of allied and predatory species. For the naturalist, these subtle intimacies and variations are a subject of wonder, which is heightened rather than diminished by scientific understanding, and laboratory control, of the mechanisms and patterns of this co-ordination. In a series of papers in the *Bulletin of the World Health Organization*, John reflected on the important arduous challenge of rearing African black flies in the laboratory: ‘Although a great deal of work on laboratory colonization has already been carried out, especially in the temperate regions of the world…the problem of rearing vectors of human onchocerciasis in Africa has been tackled by relatively few investigators’ (Wenk & Raybould, 1972: 637). A This was a problem challenge which that could be addressed by Amani’s laboratories, so close to the source material and yet capable of maintaining the kind ofnecessary scientific standard, and by a cohort of *in situ* that researchers with plenty of time on their would necessary, and with plenty of time at their hands. Thus John, together with a British laboratory technician and his African colleagues, took on this intriguing challenge and built intricate contraptions to rear flies through their entire life-cycle including the crab-bound pupal stage, in the laboratory. The apparatus simulating the complexities of water speed, lighting, oxygen, and species diversity, consisted of series of tanks, tubes and pumps, some of them installed indoors, others, on account of their size and need of fresh air and sunshine, on the lawn in front of the laboratory—. Aall were meticulously described: ‘the apparatus is situated just outside the laboratory and partially shaded by a roof positioned about 6 feet (ca 2 m) above the ground’ (1967:448).

The paper situates the relevance of the large and complicated apparatus for simulating the lifecycle of disease vectors as it its critical value for testing the efficacy of new pesticides applied to the water. However, theThe article’s focus and descriptive energies, however, is on the machine’s ingenious makeshift construction, —the bits elements that worked and those that did not or were redundant—and yet remained part of the final installation—and the details of the use of recycled bits and pieces, including

hard-to-get plexiglass tubes repurposed from an existing WHO insecticide testing kit (Raybould, 1967). To a considerable degree, these tank assemblages were living 'Wunderkabinetts', simulating streams in the shady rainforest, sunlit cascades, flies above the water, putting the naturalist's intrigue into a box, and allowing him, ever so carefully, to tinker with the wonders of co-evolution.

During a second visit to Amani~~,~~ without John, we attempted to re-enact the first successful rearing of blackflies in the laboratory, described and depicted in meticulous detail in one of John's publications. His absence changed our place in the performance, turning us into the instigators of the experiment,~~ the~~ rather hapless scientists, and ~~yet,~~ at the same time, into pupils of Stephen the octogenarian assistant who, half a century earlier, had been mainly responsible for the machine, and who now took some pleasure in taking the lead, directing the activities and demonstrating to us. The performance began with a trip to the library, where we, together with Mganga, Stephen and Ramadhani searched through old papers for appropriate instructions. Suddenly, Mganga wandered off and found with astonishing precision a small collection of conference papers, in which, he remembered, the tank was depicted and described, and ~~in which~~where he was personally ~~was~~ thanked for his contribution to the experiment (Raybould, 1967).

We carried the book into the laboratory where Stephen found, again with surprising speed, given that the instruments hadn't been used for several decades, a carefully stored compact precision pump, which he, Mganga and Ramadhani greeted with recognition and, it appeared, some respect—possibly reflecting John Raybould's own satisfaction, after lengthy efforts, to obtain this costly tool from a German supplier, documented in Amani's archived correspondence (Amani Archive, Box 21, 7 Personnel African, 175).

A critical challenge to our re-enactment was the fact that Amani on this day had been cut off from the national power grid by a storm. (The original hydroelectric power scheme had ceased to work over three decades earlier.) Accordingly, we had to search for long forgotten bits of the machinery in dark, bat-fouled storerooms, closed for years, maybe decades, using dim torches. Even if we had had electricity, the apparatus had been

taken apart, stored, and discarded, or possibly recycled, thirty or forty years before, and within our time and resources we could not have been able to completely re-assemble it, ~~leave~~ let alone make it work.

In this third, and technically most demanding, laboratory-based stage of scientific re-enactment, sensitive apparatus was critical: reliant upon supplies of spare parts and maintenance, and upon a coherent assemblage~~s~~ of tools and connections. Mechanical functioning demands completeness. The scientific experiment's dependency upon (global) circulations and networks of material resources became here more obvious than in the previous re-enactments, which ~~that~~ primarily relied upon the resources of the place. Breakage and rupture became more acutely felt. During the two foregoing field-based re-enactments, John had occasionally drawn our attention to decay: deforestation, encroachment of settlements and agriculture into the forest, thinning of the forest canopy, dried out streams. Mganga had similarly pointed out how the landscape, once orderly and 'beautiful', had become messy and polluted, and how past comforts of life in Amani—coffee shops, music clubs, piped water and electricity—had disappeared. Though the lack of flies and the disappearance of some crab species, observed during the first two re-enactments~~,~~ may be ~~-~~linked to changed microclimatic conditions caused by poor forest management, population pressure and poverty, these signs of economic decay had remained at a remove from scientific work, background figures of the landscape. In the laboratory, by contrast, the violence of these transformations, the sadness of disconnect, translated into impossible experiments. Things had fallen apart, and even though we managed to recuperate the central tank of the installation—clearly recognisable on the old photos—we could only just about hold things together to stage a photograph, but not reproduce a scene.

Such absences, endemic to the post-colony raise questions about the (in-) completeness of re-enactment, about gaps, missing links, interruptions, skipped bits, pauses. How precise or~~,~~ complete must re-enactment be? What are 'real' tools, and what can be replaced? What boundaries mark the natural limits of an experiment? In our laboratory case: what is required to justify the 'act' in re-enactment? That we search and

gather the old materials? That the pump is running and water flowing? That actual eggs and larvae are inserted into a device? That they hatch, become adults, and lay new eggs? That the whole machine continues to run ~~over~~ for some time? Or would completeness entail restoring the entire infrastructure of inputs and outputs, material supplies and data reporting, through local meetings and paper reporting chains…? And, if this arduous material verisimilitude sounds rather ambitious, is completeness at all an appropriate criterion to evaluate re-enactment? Or r~~R~~ather, it may precisely be from the gaps between artifice and memory that re-enactments as performances gain their traction. Trying to fix holes in the texture, attempting, in vain, to put together past constellations, experiencing the distance between real and make-believe, and between past and present, one experiences traces of the past and discerns the shapes of the present.

Conclusion: Amani's Epilogue

Reflecting upon the re-enactment of war, Rebecca Schneider wonders: 'What if time (re)turns? What does it drag along with it?' (2011: 14). In part, these stagings of research conjure the ghost of scientific progress and the inevitability of its decay. Their partial constitution and failed execution casts the shadow of a past-future tense, including the promise of an independent state, a national collective, and its aspirations for public health, social progress and African accomplishment. These plays of the past also certainly carry a colonial sensibility of tropical entertainments and pleasure—as Mick Gilles confessed 'the tenuous line between work and hobby has always been hard to draw' (2000:xii).

But 'the drag' also entailed methodological advantages: these performances slowed down the propulsion of given postcolonial narratives, allowing us to partake in the affective tenor of a past, embody the living gestures that marked the working and being together among the now old men. After four decades, the men embraced each other, laughing over physical changes and commiserating over familiar ailments. Yet despite a mutual affection they were still unable to exchange more than a few

pleasantries; dialogue, in their community, had been limited and technical. Rather than through narrated recollections, ~~,~~ it was in shared presence, through tactile tempos of fieldwork, searching along steep, sun baked paths and into cool streams—experienced variously as exhausting physical labour or as satisfying exhortation—that a sense of shared history was attained.

Re-enactment also marked a momentary hiatus in our fieldnotes. For in staging a hunt for crabs or the baiting of flies, what could be more thickly described than what was already depicted and detailed in the methods section of a scientific paper? In this moment, ethnographic description of 'science in action' offered neither purchase on the production of facts nor hermeneutic relief from the exigencies of representation (Latour, 1983). If anything, it was not scientific activity, per se, ~~science~~ that was rendered unfamiliar ~~was strange and unknown to us while~~ through re-enacting its scripts and animating its strange afterlives, but rather, its *telos*. ~~, but t~~ The ~~unfamiliar and~~ uncanny ~~approached~~ developed from ~~less predictable angles. s~~ Sharing the awkward intimacy of ~~these~~ our '~~t~~ableaux vivants[2], ~~we were~~ being forced to reflect on our own contradictory positions as chroniclers and provocateurs of the past.

The stutter of re-enactment goes beyond historicist return, ~~additions to~~ supplementing documentary evidence, filling gaps and silences of the sources. It produces a resonance of ethos, a reflection on purpose. These stagings open the past, not merely to diverse readings, but also to imaginations of possible outcomes: what *was* comes to us equally through what remains and the absences that they index, of what has not become. This eventuality lies at the heart of the historic-ethnographic endeavour—not as 'witnesses' of history, but as co-producers of present pasts. Our re-enactments entailed different stakes: Stephen's return to work in the lab resonated differently from John's rediscovery of the stream, and both responses diverged from our longings to be a part of these scenes, as scientists, students and would-be children. We all, however, were in some sense at least part of the same play, driven by a desire to perform something accurately—perhaps not the protocols and procedures of science—but rather the pleasure and significances of the field—its physical demands, social rhythms and natural delights.

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Where do we go from here? As we began to expand our experimental ethnographic re-enactment, our performance attained a vortex-~~-~~like quality: everything began to feel ~~like~~ re-enacted; fieldwork became colonised by performances of the past~~s~~. Like the performative archaeologists of the present, cited above, or the archaeological performers of 60s excavation events, we realised that not only can purposive performance rekindle traces, but that also tracing remains can achieve performative effect. Thus, systematically examining an abandoned laboratory with its old attendants, or perusing a library shelved in the mid-1970s with young staff, is as much about recoding evidence of the past as it is about performing temporality through a present event.

Looking back at our research in Britain in preparation of the African fieldwork, we recalled the performative dimensions of , ~~e.g.~~ visiting retired scientists and their families in their English homes, staying in their now adult children's rooms, splitting conversations between teacakes and pre-dinner drinks, sometimes ambiguously sharing in their nostalgia, or sustaining the conversations with observations or turns of phrase belonging to a different time, that we had appropriated in the course of this fieldwork. Re-enactment thus expands our range of 'historical anthropologies': not rethinking archival evidence with anthropological lenses, nor ethnographically studying other people's engagement with their memories and remains, but instead actively constituting, modulating and exploring the traffic between past and present, embodied in modes of speech and gesture, affective and sensory re-cognition, generational and gendered roles, and shared presence in place and movement.

Finally, the whole of present-day Amani Medical Research Station in its contemporary context, as alluded to in our opening, began momentarily to look like one large re-enactment: the lawns cut for no-one to walk upon, the Post Office that no longer expedites links to the world outside; the clinics maintained without dispensing health; and technicians readying ancient apparatus for unlikely scientific futures. Forms become shapes and shadows; pulsating rhythms surround a machine that no longer moves,; scientific seriousness becomes ritual in the sacred silence of the abandoned laboratory.

This raises some troubling questions in relation to older anthropological discussions about colonial and postcolonial mimesis—from cargo cult to Kalela dance. When do post-colonial institutions and practices turn into images of themselves, spectre or decoys? And what made them 'real' if ever they were, and is this distinction meaningful? Was this science—tethered to a specific, momentary constellation of inequalities and anticipations—meant to last, to be bequeathed to a new and different generation—or perpetuate~~s~~ this mimesis merely colonial violence? Is its ritual enactment—in Amani and beyond—not as much a celebration of enduring oppression (or repression) as it is a memorialisation and rekindling of past futures?

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These questions tie in with Guillaume Lachenal's reassessment of colonial medicine as spectre (2013), as well as his incisive critique of contemporary 'global health' performances and their underlying 'nihilism' (Lachenal, 2015). Certainly science is always *also* a performance—which is part of its pleasures—but when is it only a play, and for whom (Herzig 2004)? Our re-enactments open for new lines of inquiry into post-colonial science beyond familiar tropes of independence and ownership, and it ~~opens~~ could perhaps launch more far-reaching ~~for more general~~ enquiries into science, performance, authenticity and nostalgia.

Acknowledgements: Thanks to those with whom we shared the stage: John Raybould, Stephen Fedha, Ramadhani Kupe and John Mganga. Off stage, our research assistant and guide Aloys Mkongewa made the work possible—his role and that of his generation of young men in the enactment of scientific temporality deserves a separate paper. Our colleagues Peter Mangesho, Rene Gerrets and Branwyn Poleykett, and the Anthropologies of African Biosciences grouping inspired, and contested, some of our ideas. This article has benefited from comments by the audiences of the Seminar series at the Wellcome Trust Unit for the History of Medicine at Oxford; the Society for Cultural Anthropology Biennial Meeting in Detroit; We are also grateful to staff at Amani for

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their support and good humour and in particular to Dr Robert Malima the Director of the Amani Station, and Dr William Kisinza the Director of the Research Centre that Amani now belongs to. ~~Thanks also~~A final thanks to NIMR's Chief Research Scientist, Dr Mboera, for advice, and to the Director of NIMR for permission to publish this paper.

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Notes

[1] In spite of, or perhaps in response to, global eradication agendas, the Institute's scientific remit became increasingly purist, withdrawing from a number of services that had formally been carried out in the early years, such as providing expertise on the construction of local drainage systems.

[2] The phrase was coined by Alec Smith, a medical entomologist then working at the Tropical Pesticides Unit in Arusha. He elaborated: 'on occasion they descended to see what work we were doing at the Tropical Pesticides institute, but it was a world apart' (Interview, June 26, 2012).

[3] Or as Gillies writes: 'in the years preceding independence thee process of 'Africanisation' took its leisurely course. It made little difference to our sequestered life at Amani' (2000: 255).

[4] References to pressing public health concerns, and the imperative of disease eradication were cited in many publications emanating from Amani, and certainly played a role in soliciting public funding for tropical research in post-war Britain. However, conversations with a number of British scientists from the last European contingent working at Amani emphasize the station's biodiversity, wealth of unanswered questions, and its beauty, suggesting that naturalist curiosity and basic biological research interests primarily oriented scientific work in Amani at the time.

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[5] Tony Wilkes, personal communication (August 7th, 2014). Different from other Tanzanian government institutions, the declining levels of activity in Amani cannot only be explained with decreasing government budgets, structural adjustment policies etc., but also with changing scientific interests– foregrounding epidemiological studies and clinical trials that had to take place in the malarious areas - new modes of collaboration - premised upon shifting project sites rather than permanent expatriate settlements - and the unsuitability of a remote forest site for aspiring African scientists' career plans.

[6] Dorothy Wilkes, personal communication (July 26th, 2012).

[7] ~~This frozen in time, quality~~The eerie suspension ~~-~~of Amani's semi-abandoned postcolonial settings ~~-~~captures the atmosphere of ~~resembles, three decades apart, the atmosphere of~~ certain post-socialist spaces in the former Soviet Union, most notably those in the Arctic, such as the iconic 'Pyramiden' (Andreasen et al. 2010) or the town of Tiksi in northern Siberia, the dream-like quality of which is eloquently described by Arbugaeve, this issue. Three decades and worlds apart, these sites materialise science's heterotopias and uneven temporal orders, the multiple ways in which epistemic objects and ideals come into being and pass away.

[8] Many publications resulting from field research around Amani carry what by comparison to other scientific papers appears to be an excessive amount of circumstantial information about actors, timings and dates, and place. In hindsight, and having learned about the scientists' attachment to landscape, studied organisms and local co-workers, and to their own lifetime spent in the field, these articles can be read not just as overly dutiful experimental records, but as illustrated diaries, which constitute the experiment not only as evidentiary device, but also as biographical event.

[9] George Marcus (2010) notes a deep affinity between an ethnographic orchestration of sites and social actors and installation and performance-based artworks: each involve the realization of complex social topologies through "a scene of spectacle, where spectacle is conceived as symbolic act, stimulating a critical reflexivity on the part of participants and observers (ibid. 269)."

[10] Anthropologists have complicated the notion that cargo cults represent 'pre-scientific' thought, emphasizing instead the process of transcultural appropriation and mimesis (c.f. Taussig) that resonates with the reality of scientific research in the post-colony.

[11] Indeed, much of contemporary re-enactment tends to focus on the trials of others—e.g. the indignities of a slave auction (Magelssen 2007); the fear and exhaustion of an illegal border crossing (Alvarez 2011); the passion and suffering of crucifixion (Bautista and Bräunlein 2014)—and it is through their body-based witnessing that these re-enactors express, reconstruct and re-objectify the ineffable experience of pain (c.f. Scary 1989).

[12] Being an idiosyncratic, irregular and affable person, he fitted none of the available narrative schemes for 'white' people – colonial, post-colonial solidarity – and nevertheless he was the one remembered.

[13] At that time, river blindness was rampant in the forest around Amani. The fly vector, and the fact that its deposits its pupae on freshwater crabs, had been discovered in neighbouring Kenya in the mid-1940s, where the disease was subsequently controlled with DDT applied to rivers and streams (McMahon 1952; McMahon et al. 1958). Raybould's research from the late 1950s onwards extended some of these investigative lines, combined with the aim of disease control. Subsequently, the small-scale basic biology work done in East Africa was applied on a much larger scale in the WHO funded transnational West African onchocerciasis control program (Berre et al. 1990).

[14] This was discovered, in East Africa, in the late 1950s; it explained a practical problem for insecticide-based disease control, because DDT dissolved in river water did not easily reach the larvae hidden in the crab; but it also provided naturalist satisfaction and excitement to those involved in the discovery as a significant 'Eureka' moment.

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